Inventor: JOHN PATE Date: January 1 & 2023

Title: Gas Actuated Levitating Mine and Object Detection Array - or“GALMODA” ; °

Field of the Invention

{ooo1j_—C«j. The invention relates to noble-gas levitation equipment and modern variations thereof. This gas levitation device comprises superheated gas enclosed systems in conjunction : gt

with pressure release parts and modern sensory equipment for bomb and object detection. A

non-heated gas version is shown too,

Background

' [0002] A levitating Helium device for detecting mines and other objects. The invention "titled “GALMODA” which stands for “Gas Actuated Levitating Mine and Object Detection Array” combines known technologies such as Helium based balloons and dirigibles along with modern object detection equipment comprising sonar, Xray, Thermal and Metal Detection technologies and components mentioned and unmentioned reflecting such properties and in composition to’ create a fully functioning low energy low-cost remote levitating bomb and object detection

system.

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[0003] There are two relatively or completely unknown technologies comprising this ‘device. One of which is the concave roof of the Gas expansion Chamber which effectively stabilizes the unit from wind and other external conditions. This Gas Expansion Chamber design utilizes one raised stability ring as opposed to other gas levitation system stability shapes created

by the inventor John Pate. This design is very simple and greatly stabilize a payload attached

underneath the gas levitation type device, where in underneath would be considered closer to
the center of the most prevailing and influential gravity source which the unit is affected by as a whole. The concave shape produces a cliff-like or wedge-like gas-on-gas formation in where every part of the roofs ring is in opposition to each’s direct opposite in respect to a diametric trajectory. Or can be considered in circumferential perspective, the equidistant point between any point and itself located along the roof of the donut shape. As opposed to a normal balloon that has a convex rounded top and does not fight against itself to remain level in windy conditions

but instead rofis around without any opposing force created by itself.

{0004] The other technology is the heating of noble gas or air through heating parts in conjunction with pressure release valves located in the pressure release valve modules. Which forces super-heated gas or air through the one-way pressure release valves and partially empties the expansion chamber creating even lighter in weight internal atmosphere from less gas molecules and less weight than the unheated gas and ambient (external environmental) conditions. Which in turn creates greater weightlifting capability and altitude gains from the

partially emptied, pressurized, un-collapsed, gas filled cell(s).

[0005] The unit is cost effective as it does not need propulsion to keep it afloat and its position is changed by either an operator controlling a long-distance rod attached to a mooring point (or alternately two operators at two separate mooring points is possible). Also, possible methods of position and repositioning the device is by radio frequency, Bluetooth or wire fed remote control through ports with interface capability. Propulsion modules are also an available and a practical method of position and reposition the gas actuated levitating mine and object

detector array device also known as GALMODA .

[0006] The unit offers increased safety due to it not touching the ground and the distance at which it can be operated for detection, inspection, marking and detonation assistance if needed. The sensor panel itself is on multiple winches and comprises high strength low weight materials. The multiple winch system allows operators to adjust sensor panels plane for hilly condition or any terrain that is graded and not flat and true. The plane capability allows for 45* degree position of the sensor array panel module(s) and is useful for inspecting crates and other

objects that are above ground or on the ground itself. While the balloon’s shape stabilizes the
balloon and base of the device, the sensor array panel modute(s) itself/themselves is/are still able to hug the terrain respectively and keep a distance of centimeters to feet depending on

positioning of array panel modute(s) by the operator.

Brief descri: tion of the drawin:s | TF PRI ERT OE IE OTE aE RY IT

{0007] Figure 1 Shows the front exterior view of the “GALMODA”. The drawing calls out parts No.24 Camera module attached to part No.15 RigidPart Module also attached to part No.15 RigidPart are parts No.19 interface Module and parts No. 12 Sensor Module. Part No.15 RigidPart Module comprises lightweight carbon fiber mesh or the like with lightweight resin * system comprising colloidal spheres and other lightweight additives. Part No.17 Membrane Module identifies the location of the layered collaborative membrane utilized in the design to encase the levitation material and is detailed further in Figure5. Part No.17 Membrane module

is attached to the base rigid part and is also attached to the upper rigid. part. Part

No.17membrane module supports part No.15 RigidPart Module and extends upward inside of

the ring of part No.15 RigidPart Module. Part No.25 Crease depicts an arrow pointing to the crease line in part No17. Membrane Module which is where the gas expansion chambers walls | known as part No.17 Membrane Module folds into itself during collapse for times of transport, storage, or other inactivity. Part No.26 Lip is a lipped ring used during collapse of unit during inactivity and-has a latching system (that will be shown in detailed drawings submitted at time of nonprovisional application filing along with all ther details required) and is attached to part No.15 RigidPart Module. Part No.16 Propulsion Modules are ultra-light weight propulsion modules and are used for remoteor radio-controlled navigation of the device GALMODA. Part No.21 calls _out mooring points for times when long control rods are attached temporarily to navigate device. _ Part No.23 Electronicinterface Module shows module for electronic attachment for data and other electronic functions, while part No.19 Interface2 Module calls out a second operator interface module. Shown too are part No.22 Intake/Release Module for external gas introduction and release. On the lower most portion of the device GALMODA are located parts No.9 HighStrengthCord which will comprise a high strength monofilament material. Part No.10 |

SensorArrayPanel Module is not two copies but is in fact the same sensor array panel module in ' , |
two possible positions, “full up position” or known as position A and “down position” or known as position B. The part No.10 SensorArrayPanel Module is attached to the base of the device part No.15 RigidPart Module by part No.9 HighStrengthCord and has the ability to adjust its plane and altitude separately from the main body of the machine by use of a multitude of mini

winch’s which in turn creates a “mini winch system module” which will be detailed in the

nonprovisional utility patent that will be attached to this provisional patent.

[0008} Figure 2 Shows the GALMODA from a top view looking down. This drawing calls out part No.15 RigidPart Module which is attached to part No.17 Membrane Module. The ring portion of part No.15 RigidPart Module is a set of two 45* degree angles that in conjunction create a 90* degree lip.for the upper part of part No.15 RigidPart Module to sit securely on unit. The drawing calls out partNo.4 MountingEquipment module which is the outside location and stitching of part No.4 MountingEquipment Module where the interior chord from the base part No.15 RigidPart Module is attached internally and creates the concave roof that stabilizes the unit in totality. The drawing also shows part No.20 StabilityRing as the donut shaped raised upper portion of the part No.17 Membrane Module. The drawing also shows two arrows, one arrow points to part No.18 HorizonLine and denotes the approximate point at which the concave segment begins and runs circumferentially while the grading descends from part No.18 HorizonLine

towards the center part No.4 MountingEquipment Module ina radial direction. part No.29 Interface2 Module is shown here in approximate location. Also, part No.12 Camera

Module are shown and part No.27 PressureRelease Modules which are attached directly to part

No.17 Membrane Module and part No.15 RigidPart Module are shown.

{0009] Figure 3 Shows a Transparent Drawing of the unit GALMODA and calls out interior modules as well as explains in more detail the nature of the convex region of the sacor - balloon and how it is shaped to increase stability of balloon and payload. The image has four (4) Arrows called out as part No.11 which show the indent in the balloons sac also shown in this drawing is one (1) even larger Arrow labeled Part No.18 EventHorizon showing the approximate location of the event horizon of the concave portion coned in shape or otherwise of the part

No.17 Membrane Module. Also shown is part No.1 indent which is the indented region in the
center of the upper part of the part No.17 Membrane Module (as viewed from the outside of the device) where is occupied by the external or ambient environment. On either side of the

_ device part No.20 RaisedPart Module is shown rising above the concave central region. part No.20 RaisedPart Module traverses the entire device in a circumferential direction. The exact locations and planes can vary, and greater or less stability can be achieved through manipulation of the Indented space known as part No.1 Indent actual physical shape or in this case NOT-shape or also known as “negative space” in which the apparatus is not comprising parts for buoyancy or levitation. By increasing or decreasing angle of descent of part No.1 Indent or width of part No.20 RaisedPart module or adding second and third layers of raised rings at different altitudes within part No.1 Indent (changing its shape further), thereby adjusts the level of stability of the entire device. Alternately different heat chambers could be used at different locations all attached to a rigid frame to level a craft or device if desired. Alternate temperature regions or cells will not be used in this patent, however. For this simple device | chose these approximate dimensions with consideration to mass of part No.17 Membrane Module, weight load or “lift” required and altitude requirements. For heated pressurized units with the heat elements and thermoresistant sac the volume loss is insignificant for the amount of added lift produced. However, with the “not heated” gas variation a larger gas expansion chamber filled with helium is beneficial. That being stated, the inventor John Pate decided this shape and size of part No.1 indent and part No.20 RaisedPart module are well suited for this unit and capable of supporting enough stabilization while accommodating weight requirements for the applications and operations intended of said invention “GALMODA” comprising all components, modules, and parts. Also shown in Figure 3 are partNo.13 HeatElement Module and partNo.14 Conduit Module. Only 4 of the part No.13 HeatElement Module are pointed to however a total of sixteen (16) are shown in the drawing. The amount of heat elements used may vary in production for the heated variation of this detection and lifesaving equipment.

The internal part No.3 AncorLine Module is shown and attaches to the interior of the roof of part No.17 Membrane module by way of part No.4 AnchorMount Module. The drawing show’s part No.2 GasChamber Module which is the mass of the inside of part No.17 Membrane module. Also shown in this

drawing at the lower portion are locations of part No.10 SensorArrayPlatform Module (in its full
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up and full down positions). Also shown is the part No. 6 ElectronicsProcessing Module, PartNo.7 PlowerSupply/Regulation Module and PartNo.8 GasContainer Module. The system is capable of using internal Gas container parts or can rely fully or partially on external Gas introduced through Part No.22 ExternalGasintake/Release Module. Shown here as well are

PartsNo.5 Winch Module in conjunction with partNo.9 HighStrengthChord module which is

attached to and descends and ascends PartNo.10 SensorArrayPanel Module.

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[0010] Figure 4 Shows all the same parts as Figure 3 However the PartsNo.13

HeatElement is omitted for the non-heated gas version.

[0011) Figure 5 Shows a basic line drawing of the layers of the gas expansion chambers cell skin. Parts no. 31 32 and 33 are the layers and comprise known materials such as high heat

silicon, graphene and/or other lightweight nanostructures, carbon fiber mesh, Superwool fibers

and other materials.

“noble gas, any of the seven chemical elements that make up Group 18 (VIIa) of

the periodic table. The elements

are helium (He), neon (Ne), argon (Ar), krypton (Kr), xenon (Xe), radon (Rn), and oganesson (Og). The noble gases are colourless, odourless, tasteless, nonflammiable GASES.....erereresseererensssiersneess beveaneve ndeed form compounds has led to the more

appropriate designation, Group 18.” Noble gas | Definition, Elements, Properties, Characteristics, & Facts | Britannic . \ .
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Title: Gas Actuated Levitatin' Mine and Ob’ ect Detection Arra_ -or

G.A.L.M.O.D.A. qr :ventor: John Pate

Claims

Claim 1. The invention titled Gas Actuated Levitating Mine and Object Detection Array uses noble gas to levitate during operation. ‘

Claim 2. The invention titled Gas Actuated Levitating Mins and Object Array us uses a concave roof of the gas cell to stabilize the unit in the wind. ‘

Claim 3. The concave roof of claim 2 is designed so the opposing force of the opposite side of the uppermost portion of the gas cell uses internal force of the gas to balance itself due to the opposing side pushing ina constant upward direction. . .

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John Pa "Date: May 31, 2023
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Inventor: John Pate ; Title: Gas Actuated Levitatin: Mine and Ob‘ect Detection Arra -orGALMODA

Abstract:

A Noble Gas based levitating mine and object detection unit with sensor array panel and sensory modules located around and underneath the device. The unit stabilizes itself from the wind using a convex ceiling system of the Gas Chamber which creates a much more stable and level condition rather than conventional balloons with convex roofs which are the standard round top balloon shape used all over the world. The unit is ideal for life safety and can locate and mark potential explosives and other hazardous and non-hazardous objects from a safe remote location. The concave ceiling of the balloon creates a Wedge-like function and halts the balloon from dis-leveling as soon as non-level levitation begins. These units also have the capability of distance travel and higher than expected levitation altitude capability along with a non-propulsion levitation system that is highly cost effective and offers an extended duration of time from use of

Helium or the like. ~ . , . . N